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The acquisition of "optional" movement

Zuckerman, Shalom

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Chapter 3

Proposal

In the previous chapters we have considered the role of optionality and economy in linguistic theory and language acquisition. In this chapter I shall summarize the conclusions that were reached and combine them into the proposal of the current dissertation. This proposal will lead to the main empirical prediction that will be tested in the second part.

1. Assumptions

- Economy of derivation is a principle of UG. As such it need not be learned and operates in child language from the earliest stages. Economy is global – it operates on sets of otherwise convergent alternative derivations that stem from one numeration set, and selects the most economical of these alternatives. Economy is a conclusive selection process – it selects one and only one derivation as optimal.
- Optionality in word-order does not exist. Two structures that differ in word-order cannot be the result of the same numeration. This is the direct result of economy of derivation and thus holds for both adult language and child language. As a result, children do not even consider the assumption that one rule (i.e., parameter value) can account for two structures that stem from identical numerations and have different words.
- Children adopt the principles of economy to select among alternatives in the process of acquisition. When a case of apparent optionality arises in the input, the most economical candidate will be chosen.

2. Main Question:

The main question presented in this study is the following:

(1) How do children deal with the apparent word-order optionality that appears in their input?

This question can be broken into the following three sub-questions:

- (1.1) Do children show a preference for one of the two orders?
- (1.2) Is this preference unanimous among children?
- (1.3) Which principle guides the choice of a preferred structure?

3. Proposal

Based on the assumptions made above, the following answer is proposed for the question in (1):

When a child receives in her input two structures differing in word-order but apparently equal in meaning, she rejects the possibility that both of these structures are true representative tokens of the target grammar. She will apply the principles of economy in order to choose between the two alternatives. As a result, children's speech will be characterized by a preference for the alternative with the most economical order.

Given this answer, a second question arises. As all children end up with the final adult grammar, we must explain the fact that at some point they acquire this "optionality" and produce both alternatives. The second question is thus:

(2) When do children acquire the "optionality"?

Since we assumed that true optionality does not exist and that apparent optionality represents in fact a difference of numeration leading to a subtle difference in meaning, the answer to question (2) is that once a child realizes the subtle meaning difference between the two alternatives, she will produce both alternatives. Recall that we also considered the possibility of an "optionality" that arises as a result of two distinct registers or dialects to which the child is exposed. In these cases, the way out of the intermediate stage, in which the child fails to distinguish the two registers/dialects, is not through the discovery of a meaning difference between the alternatives, but rather through identifying the different 'contexts' in which they appear and classifying them as belonging to different registers/dialects. The

intermediate stage, however, for these two sources of “optionality” is identical: the child will produce the more economical word-order.

4. Predictions

Based on the above, we can now formulate our empirical prediction:

PREDICTION:

When two structures S and S' include the same elements, differ in word-order, but seem to be identical in meaning, and S is more economical than S' , children will go through an intermediate stage in which they prefer to produce S over S' .

Two modifications of this prediction are in order:

The first is that in principle, we cannot know whether a child considers S and S' to be identical in meaning. The prediction for unanimous preference towards S depends on the assumption that the child has not yet identified the difference between the two structures. As some children acquire properties of their target grammar more quickly than their peers, the prediction of unanimity should be taken as prediction for all subjects tested to manifest the preference for S . However, a quantification of the preferences of many children is predicted to show a statistically significant preference towards S .

The second modification is that while children are assumed to not identify the difference between S and S' , they might however, hold a ‘mistaken’ distinction between the two structures. Recall that we assumed that because children reject the possibility of true optionality, they are driven to constantly look for a feature that will distinguish two input strings that appear to be optional. At any given moment the child might hold a ‘mistaken’ distinction based on the cases of S and S' that have appeared in the input up to that moment. This means that the prediction above does not entail that children will not produce S' the less economical option at all. Moreover, we have seen in chapter 1 that adults produce the two “alternative” orders in a non-random distribution; thus the case might be that S' is more prominent in the input than S . The more prominent S' is in the input, the harder it is for the child to ignore it and classify it as not a true representative of the target grammar. The prediction above for a preference towards S , should therefore be

taken as a factor that interacts with the factor of the relative prominence of each of the structures in the input.

The two modifications above serve to explain the fact that although the notion of economy that children hold (which is assumed to be identical to economy in computation) is assumed to be conclusive, and rule one alternative *S* as good and the other *S'* as bad, we should not expect *S'* to be totally absent from children's speech.

These modifications lead to the following operational prediction:

OPERATIONAL PREDICTION

When two alternative structures *S* and *S'* appear to be optional, and *S* is more economical than *S'*, and *S* appears in the input in a probability *P* (and *S'* in a probability $1-P$), then children will go through a stage in which they produce *S* in a probability greater than *P* (and *S'* in a probability lower than $1-P$).

This prediction encapsulates the possible interaction of the internal choice of the more economical structure with the external factor of the input. It also takes into account the possibility that some children have already acquired the distinction between the two alternatives, as well as the possibility that children might produce *S'* as a result of a mistaken distinction they assume with respect to the two alternatives. Note that this operational prediction is clearly refutable. Once it is shown that *S'* appears in children's speech in a probability higher than its probability in the input, the proposal above must be reconsidered.

5. Methods:

The current study aims to test the prediction above through a cross linguistic experimental¹⁵ investigation. The "optional" structures, which will be the focus of investigation, are the following: embedded verb clusters in Dutch, matrix Wh-questions in French, auxiliary+infinitive structures in Dutch, triggered inversion in

¹⁵ Analysis of spontaneous speech data can be extremely valuable for the purpose of this study, especially with respect to the emphasis put on the proportion of the relevant structure in the input. I limited myself here to an investigation through experimental methods because control of context and intentions is higher

Hebrew and negative interrogatives in English. In each of these cases, two or more structures appear to fall under our definition of optionality, and in each of them one of the alternatives can be independently shown to be the result of movement, thus leading to a tentative determination that one of them is more economical than the others. In the description of the experimental methods, I will refer to the more economical option as S, and to the less economical one as S'.

As the operational prediction puts an emphasis on the production of these options by children *relative* to their presence in the input, the main method of investigation is an elicitation experiment conducted with both children and adults (ideally their parents). In this task the subjects are stimulated e.g. they are presented with a question and are asked to answer, or are requested to address a question to a puppet, to produce the structure under investigation. The task is designed so that the subjects are free to choose between the "optional" alternatives. The responses of the subject are recorded and the proportion of each option is calculated both for the children and for the adults, and then compared for possible statistically significant differences. The prediction for this task is that S will be more prominent relative to S' in children's responses than in the parents' responses. A second method is a repetition method with children alone. In this task the child is presented with a stimulus (a sentence) and is asked to repeat it. The prediction for this task is that children will convert S' to S (i.e.: when asked to repeat S' they will produce S) but not vice versa.

6. Overview of part II

In the second part of this dissertation empirical evidence is presented to support the proposal and the predictions made in this chapter. Chapters 4-6 constitute the new experimental evidence while chapters 7 and 8 are short reviews of existing evidence from the literature that will join the new data in supporting the current proposal. Each of these chapters includes an investigation of one case of "optionality" in a different language. In each chapter I begin with a review of the alternative options that create the apparent optionality. I then turn to a theoretical analysis, to show that the structures are not truly optional and to establish which of the options is the more economical one. Thereafter an experimental investigation is presented to show that children prefer the more economical option. Each of the chapters, apart from

than in spontaneous speech analysis. However, evidence from spontaneous speech analysis is reviewed through previously published research, when it is available.

offering support for the main prediction, will further strengthen the main proposal by illuminating various aspects of children's use of the principle of economy. Each of the chapters stands as an independent unit. A summary of all the results is presented at the end.